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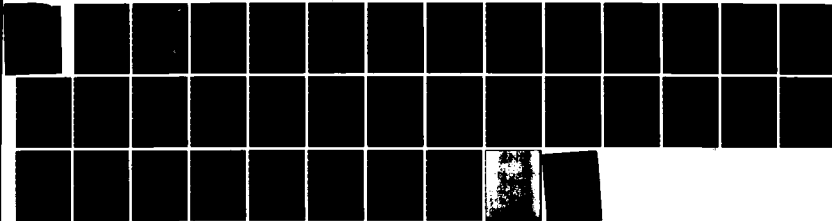
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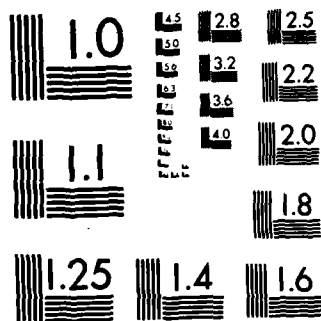
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## NAVY COMBAT RESCUE: THE FORSAKEN MISSION

by

Kerry J. Sullivan

LCDR U.S. Navy

A paper submitted to the faculty of the Naval War College in partial satisfaction of the requirements of the Department of Naval Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

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5 March 1983

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# "NAVY COMBAT RESCUE: THE FORSOKEN MISSION"

KERRY J. SULLIVAN  
LCDR, USN

COMBAT SEARCH AND RESCUE

COMBAT RESCUE

NAVY SEARCH AND RESCUE

BATTLE GROUP SEARCH AND RESCUE

HELICOPTER SEARCH AND RESCUE

SEARCH AND RESCUE

DOWNED AIRCREW RECOVERY

SPECIAL OPERATIONS

AIRCREW RECOVERY

ARMED EXTRACTION

ABSTRACT of  
NAVY COMBAT RESCUE: THE FORSAKEN MISSION

The U.S. Navy today cannot meet its mission requirement to provide for the rescue of its own forces from hostile territory. The current capability is even less than that which existed prior to the Vietnam War. Today as then reliance is placed on the ability of untrained and ill-equipped helicopter crews to perform this mission on a contingency basis. History has clearly shown that this approach is disastrous. The Navy's proposed solution in a new aircraft buy does not address the decade between now and its introduction.

This paper draws from relevant military actions, several current proposals and our present force posture to provide a workable solution which may be undertaken immediately. Mission specialization, dedicated assets, special equipment and modern tactics must all be applied in order to create a viable Combat Search and Rescue capability. Where this is not possible clear guidance must be given to commanders for the effective use of limited assets. Specific recommendations are made for the use of crews from HS squadrons to specialize in Combat Rescue. Recommendations as to the type of training and special equipment required are made as well as parameters for the use of these assets.

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## ABSTRACT of

## NAVY COMBAT RESCUE: THE FORSAKEN MISSION

The U.S. Navy today cannot meet its mission requirement to provide for the rescue of its own forces from hostile territory. The current capability is even less than that which existed prior to the Vietnam War. Today as then reliance is placed on the ability of untrained and ill-equipped helicopter crews to perform this mission on a contingency basis. History has clearly shown that this approach is disastrous. The Navy's proposed solution in a new aircraft buy does not address the decade between now and its introduction.

This paper draws from relevant military actions, several current proposals and our present force posture to provide a workable solution which may be undertaken immediately. Mission specialization, dedicated assets, special equipment and modern tactics must all be applied in order to create a viable Combat Search and Rescue capability. Where this is not possible clear guidance must be given to commanders for the effective use of limited assets. Specific recommendations are made for the use of crews from HS squadrons to specialize in Combat Rescue. Recommendations as to the type of training and special equipment required are made as well as parameters for the use of these assets.



## PREFACE

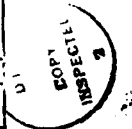
U.S. Navy Combat Search and Rescue is a controversial issue. There has been a great deal of misunderstanding within the Navy about the requirement for this mission and how best to perform it. Many proposals and counter-proposals have been made. Nevertheless, no active duty Navy unit is assigned nor considered capable of conducting Combat Search and Rescue. Interest in this area is increasing and an official program exists to provide this capability in the future. The controversy is now primarily focused on the interim period. Because of the lengthy lead time required to procure a new aircraft and weapons systems, only assets presently in the fleet can be expected to conduct this mission for the next decade. Thus, the Navy must consider how, if at all, this mission will be accomplished until new systems can be introduced to the fleet.

As a former CNO SAR Model Manager, the author wishes to clarify this issue and encourage progress towards its rapid resolution. It is the purpose of this paper to provide some realistic recommendations which may be adopted now without affecting the defense budget.

## TABLE OF CONTENTS

CHAPTER		PAGE
ABSTRACT		ii
PREFACE		iii
I	INTRODUCTION	1
	The Problem	1
II	THE EVOLUTION OF COMBAT SEARCH AND RESCUE	3
	Vietnam Perspectives	3
	The Vietnam Experience	3
	The Mayaguez Operation	5
	Post-Vietnam Developments	6
	The Falklands' War	7
	Operations Today	9
III	THE CURRENT SITUATION	10
	New Threats--New Tactics	10
	Recent Developments	11
	The Readiness Dilemma	12
IV	AN EVALUATION OF PROPOSED SOLUTIONS	14
	Mid-Air Recovery Systems (MARS)	14
	Joint Advanced Vertical Lift Aircraft	14
	Mid-Term Aircraft Proposals	15
V	CONCLUSIONS AND RECOMMENDATIONS	17
	The Problematic Mission	17
	Fulfilling Our Obligation Now	17
	Recommendations	18
	APPENDIX I--CSAR AIRCRAFT EQUIPMENT	21
	NOTES	22
	BIBLIOGRAPHY	25

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## NAVY COMBAT RESCUE: THE FORSAKEN MISSION

## CHAPTER I

## INTRODUCTION

The Problem. Does the United States Navy have a requirement to conduct search and rescue of its own forces under combat conditions? If so, does the Navy have that capability? Testifying before Congress recently, Rear Admiral Paul T. Gillcrist (OP-50) stated:

The National, Department of Defense, Joint Chiefs of Staff and Navy directives on Search and Rescue policy are all very clear on the subject of service responsibilities. They state:

First, that each military component of the Department of Defense is responsible for providing rescue capabilities in support of its own operations; and

Secondly, and more specifically, that rescue operations in support of a naval task force are the responsibility of the task force commander. Also, and equally applicable to the Navy, is the JCS policy that rescue operations in support tactical operations in a battle area are the specific responsibility of the tactical commander.<sup>1</sup>

Some of the generally accepted arguments for a Combat Search and Rescue capability are:

- Morale of the aircrews.
- Return of critical manpower assets.
- Denial of intelligence to the enemy.
- Denial to adversaries of American hostages.

-Greater Special Warfare operations capability.

-Enhanced rescue capability for war at sea.

As Rear Admiral Gillcrist stated in his testimony, "The case for Combat Rescue can be argued in many ways, but the essence of the case lies in the roots of western culture and the basic nature of the American people."<sup>2</sup>

Clearly then, Combat Rescue is an essential function in support of the greater Navy missions of sea control and power projection. In addition, it is a vital capability during peacetime by preventing the wrong kind of naval presence--the captured aviator. The question remains then, do we have the capability to perform this assigned mission? Again quoting Rear Admiral Gillcrist, "There is no question that our capability to conduct rescue operations under air combat conditions is inadequate both in numbers and in equipment capabilities."<sup>3</sup> Why, then, are we not able to conduct this important and longstanding naval mission? What have we done to rectify this deficiency? A House Armed Services Committee report on hearings held during April of 1983 on this subject stated: "The survival and rescue policies of the services are in sad disarray. The committee found evidence of a disjointed, uncoordinated, neglected and totally unsatisfactory level of effort among and within the services."<sup>4</sup> To understand how this state of affairs came about we must first look at the history of this mission.

## CHAPTER II

## THE EVOLUTION OF COMBAT SEARCH AND RESCUE

Vietnam Perspectives. Navy Combat Search and Rescue (CSAR) has been considered by most naval historians to have been a major area of success and has even been described as "...one of the few bright spots of the Vietnam War."<sup>1</sup> Vice Admiral Cagle wrote that, "One of the truly great success stories of TF 77 operations in the Gulf of Tonkin is the development...of a combat Search and Rescue (SAR) capability...".<sup>2</sup> In his account of the operation he eloquently stated the reasons for the CSAR mission and its very great importance to the morale of the pilots. Indeed, the heroism displayed by the helicopter crews was exemplary. One of those cited by Vice Admiral Cagle for his heroism was Medal of Honor recipient Lt. C. E. Lassen. After his retirement, Cdr. Lassen provided another perspective: "The Navy's experience with Combat SAR in North Vietnam was a classic example of 'how not to do it', we were totally unprepared, untrained, and with few assets. As a consequence the TACAIR and helicopter community paid dearly."<sup>3</sup>

The Vietnam Experience. Little of lasting value was learned prior to the Vietnam War, although valuable lessons should have been applied from the Korean War. A CSAR force had to be built from scratch in 1965. By April, combat attrition necessitated the creation of SAR stations using

plane guard helicopters (UH-2A/B's) on destroyers. By November of 1965, SH-3A ASW helicopters assigned to the carrier were stripped of their primary mission equipment and assigned to the CSAR mission, also. The H-2 helicopters were not provided with armor, self-sealing tanks, camouflage, an adequate engine or a new machine gun until eight months after their introduction as CSAR aircraft. The SH-3 helicopters were not upgraded for this mission until after a similar delay.<sup>4</sup>

Recently declassified documents note that the SH-3 and UH-2 helicopters with armor kits and light weapons were pressed into service for lack of a more suitable combat recovery vehicle.<sup>5</sup> Despite the peacetime success of these utility aircraft, aircrew recovery rates were low when enemy opposition was encountered. Success rates were calculated as 97% with no threat, 82% with a small arms threat, 60% against small arms and light anti-aircraft weapons and a six percent recovery rate when within heavy antiaircraft artillery range. Rescues were not attempted against a SAM threat.<sup>6</sup> Another study noted that 321 Navy airmen were downed in North Vietnam or close to the shore. Of these, 169 were able to reach the ground alive, yet only one in six was rescued before being killed or captured. For the 27 Navy CSAR rescues made in North Vietnam the Navy lost 19 aircraft and 15 SAR personnel.<sup>7</sup>

From this it was clear that ASW and utility helicopters flown by heroic but unskilled crews could not adequately

perform the mission. The concept that any helicopter and crew could conduct CSAR was abandoned. A special helicopter squadron was formed solely dedicated to the CSAR mission. This squadron, HC-7, rescued over 150 pilots from the combat zone without losing a crew to enemy action. Success came from using dedicated assets (the same H-2's and H-3's), mission specialization, and standardized tactics. The November 1970 rescue attempt made on the Son Tay prisoner of war camp demonstrated the viability of this concept. Air Force helicopters were successfully used without loss in a night raid only 23 miles from Hanoi.<sup>9</sup> Such was not the case in the rescue attempt of the S.S. Mayaguez.

The Mayaguez Operation. Only two weeks after the evacuation of Saigon, U.S. forces were rapidly deployed to recover the American container ship, the S.S. Mayaguez. The captured crew was believed to be on the island of Koh Tang. A joint force of Marine ground troops and Air Force helicopters assaulted the island on the morning of 15 May 1975. The assault force did not have the advance planning and intelligence available to the Son Tay raiders. Of the fourteen helicopters that participated in the assault and subsequent evacuation, three were destroyed and 10 were damaged. The first assault wave was conducted during daylight with eight H-53 helicopters before any pre-assault air or naval gunfire strikes had been made. The threat consisted of intensive small arms fire. Three helicopters were lost within the first ten minutes. The helicopters did

not use doctrinal tactics. What is significant is that the HH-53 crews, who were trained in CSAR, were twice as successful as the logistical CH-53 helicopter crews.<sup>9</sup>

Post-Vietnam Developments. By 1975 all of the Navy's CSAR assets, which consisted of the same aging H-3's, were transferred to the reserves in what is now HC-9. However, CSAR temporarily remained a mission of the ASW helicopters aboard the carriers in the HS squadrons. The significant submarine threat and growing sophistication of the ASW mission took priority, and no equipment or training for the CSAR mission was formalized. This lack of preparation occurred despite the recent lessons learned for two major reasons. First, because although the need for the CSAR mission never went, the assets available to do the mission did. Secondly, because it was perceived that we actually were quite successful this way in Vietnam! The technological advance and proliferation of effective antiaircraft weapons demanded adequate equipment and training for the mission. Instead, CSAR was removed from the HS squadrons' mission requirements, which prohibited CSAR training and equipment. Tactics and new equipment were still being developed by the Air Force, the Marines and HC-9. A joint development committee regularly met to discuss CSAR. These meetings were hosted by the Air Force but there was no action taken on the recommendations and it was finally abolished in 1982.<sup>10</sup>

The general force decline since the Vietnam War has severely reduced a number of critical assets. The many



priorities for our limited budget did not include a dedicated CSAR capability for the regular Navy. The Air Force, and to a lesser extent, HC-9, retain the only CSAR capability today. The regular Navy is without the ability to perform this mission. According to Cdr. Lassen (and others), "The Navy is less prepared now for SAR than at the outbreak of Vietnam."<sup>11</sup>

The Falklands' War. The important roles that helicopters played during the Falklands' War bear some significance for CSAR in modern naval warfare. The two carriers and the nine other different classes of destroyers and frigates in the task force all operated helicopters, many doubling their normal complement. Three specific helicopter uses are relevant to the U.S. Navy CSAR mission.

After the loss of the helicopters aboard the Atlantic Conveyor, a squadron of ASW Sea Kings (designated by the U.S. as H-3's) was converted to support the land campaign. This squadron was issued night vision goggles and their crews became proficient in their use after only a few hours of training. They were able to fly in total darkness 20 feet above the sea and insert teams ashore. This is a viable tactic for CSAR helicopters. The British could afford to use these ASW helicopters for a different mission despite the serious submarine threat because their carriers operated three times as many H-3 type aircraft as a U.S. carrier does. Covert operations preserved these otherwise unprotected helicopters.<sup>12</sup>

The British Army Gazelle helicopter was designed for

reconnaissance and command-and-communication missions. Its lack of offensive armament in a country devoid of natural cover made it vulnerable to ground fire. Efforts are now underway in the United Kingdom to enhance its battlefield survivability.<sup>13</sup>

Lastly, we should draw a lesson from the importance of SAR to the British task force. Airborne helicopters acted without direction to rescue survivors from the stricken H.M.S. Argonaut and H.M.S. Ardent. It was a helicopter sent to investigate the H.M.S. Sheffield's silence which was first able to render aid to that burning vessel's crew. The rapid helicopter response in the case of the Ardent, which had received two 1000 pound bomb hits aft, rescued about 200 men from the fire and frigid South Atlantic waters before other vessels could arrive. After the loss of the Sheffield and Ardent, the task force commander, Rear Admiral Woodward, held H.M.S. Coventry back from a position which allowed better Sea Dart missile employment to keep her within rescue range. When the Coventry was hit the next day, every available helicopter was vectored to her position. Helicopters saved 283 crewmen and only 19 men were lost.<sup>14</sup> The task force itself consisted of about 150 helicopters. A similiar U.S. Navy two carrier battle group would deploy with about ten percent of that number.

Operations Today. ASW helicopters aboard our carriers today remain airborne for rescue purposes whenever flight operations are conducted. They are the logical choice for

SAR or Medical Evacuation (MEDEVAC) missions. In nearly every contingency operation conducted by the U.S. Navy, ASW helicopters are ordered to prepare for rescue operations. The possibility of hostile fire exists, whether ashore or at sea. Unfortunately, these crews are not provided the benefit of advance training or special equipment necessary to survive. This has been true in the Gulf of Sidra, in Grenada and elsewhere. One of the lessons of the Iranian hostage rescue attempt was that it is easier to train crews in a new aircraft than in a new mission.<sup>15</sup> It is inappropriate to assign this mission without permitting those responsible to prepare for it, yet that is our situation today.

## CHAPTER III

## THE CURRENT SITUATION

New Threats--New Tactics. The Soviet Union has developed a defense-in-depth concept that employs several SAM systems as well as AAA (Antiaircraft Artillery). Helicopters can remain below the operational envelopes of most of the SAM systems, but this increases the helicopter's vulnerability to AAA. To be able to successfully conduct the rescue of downed aircrews in this environment requires new tactics and equipment. We cannot afford to lose the number of helicopters that we did in Vietnam before we learned how to do the mission.

The most beneficial tactic is to remain undetected. This can be done by using terrain flying techniques which allow the helicopter to mask itself behind hills, trees and other obstacles. Flying at night or in bad weather would further conceal the helicopter. This tactic requires extensive training and practice to be successful. It is constrained by the time required to fly any distance under such circumstances. It requires better navigational skills and equipment than exist in fleet helicopters today. This tactic is practiced regularly by the other services, including the Marine Corps. The Marine Corps, however, does not have a CSAR mission requirement for the Navy.

The ability to survive once detected can be enhanced by

several improvements including armor, suppressive fire, forward-firing weapons, chaff and other expendables, reduced helicopter IR signature and reflectivity, Evasive Maneuvering (EVM) and Defensive Electronic Counter-Measures (DECM). The addition of even one of these systems would be of benefit, but current fleet assets cannot afford the performance penalties associated with the additional mission weight. Implied with this mission concept is the inability to conduct a traditional search. The survivors' position must be accurately known in advance so the mission can be planned to avoid threats. The Sarsat and Survivor Avionics System (SAS) are new technologies which should permit accurate locating information. A greater reliance upon and coordination with the various services' Survival, Evasion, Resistance, and Escape (SERE) programs is essential. Time to rescue will still be critical.

Recent Developments. Two factors have further degraded the Navy's force posture to conduct CSAR. The first is the loss through attrition of the CSAR experienced aircrews. Secondly, there exists today a critical shortfall of helicopter assets. Plans have been formulated for the closing down of present SAR facilities ashore.<sup>1</sup> Furthermore, the SH-3's will be required on more carrier decks and there are barely enough for the ASW mission now. There are no acquisition programs underway to alleviate these shortfalls.

The 1983 CNO SAR Conference directed some specific actions including improvements in service and NATO CSAR

interoperability, contingency plans and tactics.<sup>2</sup> Some Operational Requirements for new CSAR aircraft have been forwarded to CNO. These proposals were aimed at an H-60 airframe, but all of these proposals were absorbed into the JVX program. Congressional hearings began in April of 1983 on the issues of CSAR and SERE of the various services and pointed out some serious weaknesses. While the other services have active programs, the Navy has only the conceptual JVX program as a potential answer for the CSAR question. The predicted IOC (Initial Operational Capability) of JVX for CSAR is not until 1993 at the earliest.<sup>3</sup> In June of 1983 Vice Admiral Kilcline, then Commander Naval Air Force, U.S. Atlantic Fleet, forwarded a letter to CNO proposing that training programs and pre-positioned CSAR equipment be provided aboard the carriers. He also requested that the SAR Model Manager (HC-16) develop realistic contingency programs and a viable tactical doctrine. Although he supported the JVX for the long-term, he also recommended additional airframes such as the H-60 for the mid-term.<sup>4</sup> Soon thereafter a draft CSAR Tactics Manual was provided to fleet units which explained the threats. Many squadrons have developed their own contingency plans, calling for flak jackets and small arms.

The Readiness Dilemma. There are two concerns which pose a dilemma for helicopter units. Although not an assigned mission which would allow formal training and equipment procurement, CSAR is a likely mission, nonetheless.

Secondly, is the concern that to prepare for the mission in some meager way may increase the risk of being tasked to perform it. In other words, it is feared that a band-aid might be assumed to be the cure. The Vietnam War showed us that helicopter pilots had the "right stuff" for the CSAR mission, but they could not be successful when given the "wrong stuff" with which to do it.

## CHAPTER IV

## AN EVALUATION OF PROPOSED SOLUTIONS

Mid-Air Recovery Systems (MARS). A detailed study of ejection airspeeds, altitudes and rescue recovery rates during the Vietnam War was conducted for the Navy. From that analysis a proposal was made to rescue aircrewmembers while in their parachutes and before they reached the ground.<sup>1</sup> The Naval Air Development Center had proposed a similar system as part of their CSAR aircraft requirements study.<sup>2</sup> Glide ratios of eight-to-one can be obtained using parafoils. The technology to retrieve personnel and other objects in mid-air has been successfully proven and in fact is routinely employed by the Air Force. It has been calculated that an S-3 equipped with a MARS system could have recovered 64% of the pilots over Vietnam who were not recovered before capture.<sup>3</sup>

This proposal deserves consideration. Unfortunately, this system could not rescue crews who ditch or crash. It is dependent on a functioning homing device and may not be able to make multiple retrievals in a short period of time. It may have serious drawbacks when the visibility is limited and it cannot work in cases of low altitude ejections. Therefore, the requirement to hover will not change.

Joint Advanced Vertical Lift Aircraft (JVX). The NASA/Army/Navy/Bell XV-15 aircraft is a demonstrated



technology that has many applications for naval missions.

Today the aircraft can fly at 304 knots for ranges up to 2,250 miles and hover almost as efficiently as a helicopter.<sup>4</sup>

The JVX is the joint services operational requirement based on the XV-15 technology. It is required to cruise at no less than 250 knots for at least 2100 miles unrefueled. It will be able to operate in the low speed and hover modes for terrain flying and carry 24 passengers or 12 litter patients.<sup>5</sup> JVX has had some of the usual joint development problems but no one really doubts that it will be developed. The most urgent requirement for JVX lies with the Marine Corps. The Army is out of the program and the Air Force is minimally supporting it for their special operations mission.<sup>6</sup> Air Force CSAR needs will be met with the planned buy of 243 HH-60D Blackhawks with an expected IOC of 1987. The JVX has an IOC of 1991 to replace the aging CH-46 Marine Corps helicopters. Navy needs for CSAR will follow those of the Marines. Neither the Air Force nor HC-9 are confident that JVX will be the best CSAR vehicle.<sup>7</sup> It is the decade between now and then that is the major concern of fleet units. Clearly we cannot afford to wait that long before we have a viable CSAR capability.

Mid-term Aircraft Proposals. It has been suggested, although not by the reserves, that HC-9's nine HH-3A's be positioned aboard our deployed carriers. This poses a problem of ensuring trained crews are available to fly them. It would also eliminate the Navy's only repository of CSAR

expertise. A more gradual shift of these assets to the active fleet is more practical but there is a problem with the aircraft themselves. These Vietnam veterans have high ground fire vulnerability; inadequate speed, maneuverability, range and firepower; large weapon sensor signatures; no survivor detection capabilities; poor low-altitude navigational abilities and limited IFR capability close to the earth. They are over maximum gross weight when in a mission configuration. Nevertheless they are the best aircraft in the Navy inventory for the mission.<sup>8</sup>

There have been a number of proposals for commercial helicopters such as the Hughes 500. The mission essential equipment for CSAR simply won't fit in these smaller airframes. The lesson we should have learned is that not every helicopter can be a CSAR vehicle.

The most viable alternative has been the proposal for the marinized HH-60. A joint effort incorporating the Air Forces' HH-60D Blackhawk system into an SH-60B Seahawk airframe could give the Navy a real capability in a few years time. If for instance, the Navy procured the SH-60F as a replacement for its SH-3H's, it could have six ASW aircraft and two CSAR aircraft on each carrier without taking any additional deck space.

## CHAPTER V

## CONCLUSIONS AND RECOMMENDATIONS

The Problematic Mission. Navy tactical commanders are responsible for rescue operations of their own forces. This requirement is based on policy decisions, service directives and practical necessity. To abandon our own people in distress is contrary to American culture and Naval tradition. We have learned from the many historical examples that Combat Rescue requires mission specialization, prior training and adequate equipment. The Navy is less capable of conducting CSAR today than in the past. Our helicopters are inadequate both in terms of numbers and equipment. The proposal to take advantage of the unique XV-15 technology for CSAR is a step in the right direction. The problem remains to be addressed. What do we do now for this forsaken mission?

Fulfilling Our Obligation Now. Without official tasking or guidance many helicopter units are attempting to prepare for what they believe to be an inevitable mission. Some degree of Combat Rescue capability can exist with special equipment and training. A trade-off must be made with the present mission requirements of these limited assets. And most importantly, firm guidance must be provided from higher authority to realistically limit the participation of current Navy helicopters in Combat Rescue. This should take the burden off of the tactical commander (and the helicopter

crews) to attempt high risk rescues. It would not be a restriction of our capabilities, it would be a realistic recognition of our already severely limited ability. We cannot in good conscience do anything less.

Recommendations. Specific steps can be taken in a number of areas now. First we should identify what aircraft we intend to use for CSAR in the immediate future. There are no adequate numbers or reserves for any of our fleet helicopters. The choice will involve a trade-off. Although the H-46 is probably the best airframe choice, it is not consistently available to the battle group. LAMPS aircraft have inadequate cabin space to be worthwhile and are already committed to multiple missions. The SH-3 aboard the carriers is large enough and it has commonality with the HC-9 aircraft. If necessary it can be deployed on SAR destroyers with Spruance, Kidd, or Ticonderoga class hulls. At least one aircraft per HS squadron should be identified for the CSAR mission.

One and a half to two complete crews should be selected to fly the CSAR aircraft. The crews should be volunteers from among the most experienced. Although they could fly ASW missions as part of qualified crews, they should not be required to be ASW mission qualified. The aircrew for the CSAR mission should contain a minimum of two qualified rescue swimmers and be augmented with additional rescue swimmers, hospital corpsmen, Marine aircrewmen trained in air-to-ground weapons and/or SEALs.

The training of this special crew would be vital to its success. The pilots should attend the Marine Corps Air Weapons and Tactics School (MAWTS) flying their own squadron or HC-9 aircraft. A vigorous on-going training program would have to follow to ensure proficiency in the skills of map interpretation and terrain analysis for route planning, threat analysis and countermeasures, PVS-5 night vision systems, mission planning and nap-of-the-earth flying. The bulk of this training should be done ashore under the tutelage of HC-9 personnel.

Careful management of mission essential equipment against performance penalties would be required. Appendix 1 lists the type of CSAR equipment that would be necessary. This equipment would enhance mission capabilities in Electronic Warfare and Over-the-Horizon Targeting (OTH-T) as well.

The policy guidance for the use of a CSAR SH-3 should establish the criteria necessary for mission launch. If, for example, each of the following criterion could not be met the mission should not be authorized:

- The pilot must be alive, uncaptured, located and authenticated.
- A specially qualified crew and aircraft must be available.
- Adequate threat intelligence must exist.
- Entry, pick-up and egress routes must be planned.
- The planned routes can be flown and navigated under the forecasted conditions.
- Local air superiority can be maintained.

- The threat can be neutralized throughout the planned flight.
- Adequate aircraft endurance exists plus a forty-five minute reserve.

When the above conditions can be met the tactical commander can weigh his mission priorities and decide intelligently whether to use his CSAR asset.

When the helicopter does not have adequate organic fire suppression or suitable terrain to mask its approach, RESCORT and RESCAP aircraft must be used. Proper coordination of a CSAR mission requires training in the responsibilities of the SAR Mission Coordinator (SMC) and the On-Scene Commander (OSC).

With these steps a modest but realistic capability would exist to meet the CSAR mission. In the past the Navy has spent millions of dollars for safety and survival equipment. It does little good for an aviator to successfully eject and survive in a hostile environment if he has no chance for recovery. Failure to take these or similar steps would be to move from benign neglect to abrogation of an important naval mission.

## APPENDIX I

### CSAR AIRCRAFT EQUIPMENT

#### AVIONICS

AN/APR-39 . . . . . RADAR RECEIVER  
 AN/ALE-39 . . . . . CHAFF/FLARE  
 AN/ALQ-144 . . . . . IRCM  
 AN/ARQ-46 . . . . . SURVIVAL AVIONICS SYSTEM  
 AAR-46 . . . . . IR DETECTOR  
 AN/ASN-128 . . . . . DOPPLER NAV

#### ARMAMENT

M-97 20/30 MM FLEXIBLE WEAPON SYSTEM  
 M-60 20 MM MACHINE GUN(S)  
 M-79 30 MM MACHINE GUN(S)  
 FLAK JACKETS

#### NAVIGATION

LITTON 211 OMEGA/VLF  
 COCKPIT MAP DISPLAY  
 NIGHT VISION GOGGLES (PVS-5 OR ANVS-6)

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